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(54) **RUNTIME TYPE IDENTIFICATION OF NATIVE HEAP ALLOCATIONS**

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(57) **ABSTRACT**

During compilation, a table mapping relative virtual address of a memory-allocating instruction of a native language program to a user type of the instance is created. During execution of the program, a module injected into the process intercepts calls to memory allocating functions and records the virtual address of the instruction calling the memory allocating function and the virtual address of the instance created. When a snapshot of the process heap is requested, the user type of the corresponding compile time instruction is assigned to the created instance. User type and heap information can he used to compute sizes of memory allocations and to aggregate user type instance counts and sizes. Using the static debugging information, a reference graph that displays the nesting of objects in live instances can be computed and displayed.